OUR GREEN FUTURE

The construction of Monash University's Green Chemical Futures Building has allowed the university to become the centre of innovative chemical science through unifying teaching, research and industry engagment in the one location.

Designed by Lyons and constructed by Lend Lease, the $65 million building provides engaging academic spaces where students, their peers, academics and industry professionals can collaborate, explore possibilities and expand their thinking. The building has set the university firmly as a leader in the global shift towards green and sustainable chemistry.

The 9300m², five-storey Green Chemical Futures building is located within the university's Clayton Campus' science hub and is the home of the School of Chemistry in the Faculty of Science. It was awarded practical completion 2 weeks ahead of schedule.

Partly funded by the Australian Government through the Education Investment Fund, the building achieves a Green Building Council of Australia Green Star 5-star rating for sustainable design and construction. Inside, the building moves away from the "traditional" university lecture halls and instead features advanced teaching and collaborative learning spaces on its lower levels, encouraging active learning and creative problem-solving in smaller groups.

The building's upper levels house modular state-of-the-art research laboratories as well as translational facilities. A double-height foyer and void spaces link the building's levels and its collaboration areas throughout. Not only does the building provide both academic and industrial research within Australia's chemical sector, it also supports world-class research to expand Australia's green workforce.

The building is designed to house more than 100 chemists and engineers, and has laboratory spaces for more than 1000 students per day.

The building has provided spaces to deliver training programs to industry practitioners. Scientists and engineers will be able to collaborate on projects together with the CSIRO, and the Victorian Environmental Protection Agency. The Green Chemical Futures Building also allows Monash University to partner with several national and international institutions, including Warwick University, Japan's Waseda University, the Indian Institute of Technology Bombay and the Plastics and Chemicals Industries Association (PACIA).

Monash University Facilities and Services' Senior Project Manager Jamie Nicolson says the design of the Green Chemical Futures Building makes an immediate impression. "Lyons always design interesting buildings with limited straight angles," he said. "My favourite feature is the hexagon-shaped steel and theme throughout the whole building, representing a molecular structure."

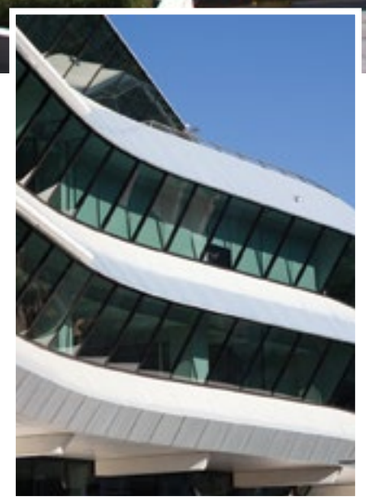
Up to 300 workers were on site during peak times, with some challenges encountered during the development's construction. "There were myriad risks and obstacles, mainly the neighbouring properties and especially the sensitivity of the Monash Centre for Electron Microscopy (MCEM) building, which is equipped with extremely sensitive microscopes for research that is sensitive to vibration and electromagnetic fields," Jamie explained, adding that the project was one of the most interesting he has managed.

"There were a variety of parameters, from the existing tunnel networks and infrastructure, to very intricate and bespoke design elements – there was never a dull moment," he said.

"The build quality also reflects well on Lend Lease. Furthermore, the whole project team worked very well together. It was a pleasure to work with some of the best players in the industry. All round, the project had a good builder and designers who paid close attention to detail, as well as great assistance and understanding from all of the Facilities and Services team here at Monash University.

For more information contact Monash University Facilities and Services Division, Building 40, Clayton Campus Monash University VIC 3800, phone 03 9902 0284, website www.monash.edu.au

DEVELOPER : Monash University
CONSTRUCTION COMPANY : Lend Lease
ARCHITECT : Lyons
STRUCTURAL ENGINEER : ARUP
CONSTRUCTION VALUE : $65 million



Below Lyons provided the architectural and interior design for the Green Chemical Futures Building.

Photos by Peter Bennetts

In providing the architectural and interior design for the Green Chemical Futures Building. Lyons ensured the development incorporated flexibility for its occupants in the teaching, research and industry translational research laboratories.

"Our design team are very multi-skilled and there is little distinction between architecture, laboratory and interior design. This holistic approach to design allows us to work seamlessly on all facets of the design from conception through to completion," Lyons Director Neil Appleton said.

"Our design team worked in close collaboration with Monash University stakeholders to brief and design the building. We managed to meet the stringent requirements of laboratory design at the same time as creating a highly engaging architectural design, both inside and out."

Among the notable design features of the Green Chemical Futures Building is its highly articulate and visually open façade, which addresses the University's new campus walk.

"This articulation takes the form of hexagonal shaped frames, referencing the basic graphene structures common within the science of green chemistry. As if extruded through the building, these hexagonal shapes in part form the north and south façades, providing self-shading as well as opening up views into and from the building," Neil explains.

"Internally, generous double height foyers are framed by massive molecular like columns and beams. The foyers provide open access via a sky lit atrium to the student labs and learning spaces on the lower two levels and the research offices and labs on the upper two levels.

"One of the significant design features is the very long span of the main structural 'verendeel' beams, providing column free space to allow the labs and offices to be easily reconfigured over time.

"These beams allow the fume cupboard ducts and services to pass horizontally to and from the plant rooms located on the west end of the building. The accessible roof decks of the facility will be used by the scientists and students as outdoor laboratories.

"The interiors are distinguished by the high levels of visual interconnectivity, with full height glazed screens between corridors and laboratories and offices, making visible the collaborative work practices. A literal spectrum of colour is used in the floor finishes to register movement from one end of the building to the other."

The practice was established 18 years ago and employs a 70-member-strong team, eight of who worked on the Green Chemical Futures building. As specialists in architecture for public buildings, education facilities, laboratories and more, Lyons' portfolio boasts an impressive list of landmark projects, including the design of many leading science, engineering and medical research projects.

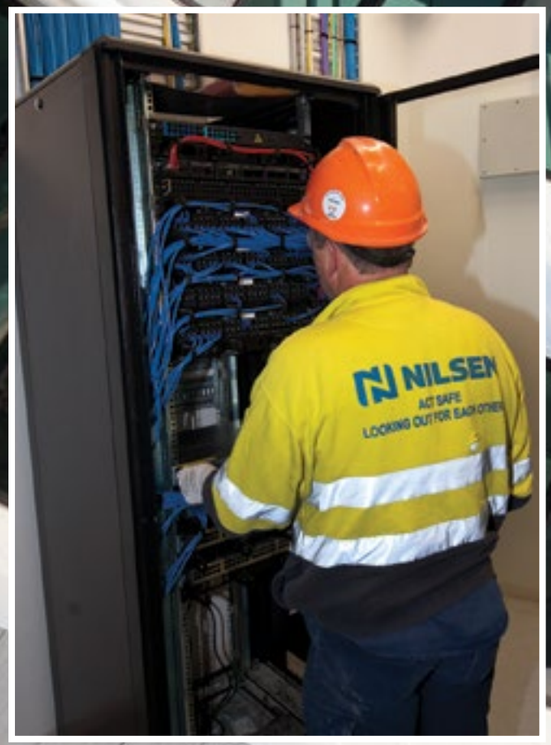
Lyons projects include the $135m John Curtin School of Medical Research and the $250M Colleges of Science at the ANU, University of Melbourne's $160m Melbourne Brain Centre and the $160m New Horizons Engineering building at Monash University.

In addition, the practice also designed the multi-award winning $220m Swanston Academic Building at RMIT and the new AIA headquarters Office Building on Exhibition Street, 41X.

Lyons is currently providing its design services for the new Perth City Square (named Yagan Square, in collaboration with Iredale Pedersen Hook), Adelaide University Medical School, the University of Newcastle New Spaces project and RMIT New Academic Street.

For more information contact Lyons, Level 3, 246 Bourke Street, Melbourne VIC 3000, phone 03 9600 2818, email lyons@lyonsarch.com.au, website www.lyonsarch.com.au

Below Nilsen Electric works included installation and supply of security services, AV systems and EMF shielding.



Below DCWC Management were the Project Manager and Superintendent for the Green Chemical Futures Building.

Providing electrical contracting and manufacturing, Nilsen continues to partner with major Australian companies on complex projects requiring innovative electrical engineering solutions.

"We deliver those solutions through the consistent technical excellence of our people and the quality of our production systems, which manage our work down to the finest detail," Nilsen (VIC) Divisional Manager, Contracting Gary Falvey said.

It is this innovation that was applied to Monash University's Green Chemical Futures Building, where Nilsen completed the electrical and communications installation.

The company's scope of works included the supply and installation of general light and power, communications outlets, exit and emergency lighting, lighting control, security services and AV systems, lightning protection and EMF shielding. Thirty of Nilsen Victoria's 285 employees worked on the building.

Founded in Victoria in 1916 by Oliver J Nilsen and with locations across Australia's mainland, Nilsen remains a family-owned business to this day with fourth-generation Managing Director Mark Nilsen at the helm.

Nilsen provides a range of services including electrical audit, design, installation, testing and servicing, switchboard and other specialised equipment installation and servicing, and project management of electrical and non-electrical work.

Nilsen also carries out facilities auditing – managing electrical systems and undertaking repair and maintenance work, and provides specialist skills such as high-energy equipment testing and servicing.

Additionally, the company offers TEGG – a unique service program to improve reliability and reduce maintenance costs, and non-electrical services, including data, lighting control, emergency lighting, process control and more.

Nilsen (VIC) is currently working on the Bendigo Hospital Project and Melbourne Airport redevelopment.

For more information contact Nilsen (VIC) Pty Ltd, 43 Sheehan Road, Heidelberg West VIC 3081, phone 03 9450 1300, fax 03 9457 5261 email NilsenVic@nilsen.com.au, website www.nilsen.com.au.

Founded almost 50 years ago, Donald Cant Watts Corke (DCWC) Management has built a reputation based on integrity, passion and reliability to become Australia's largest privately-owned project management and cost services provider. Specialising in complex multi-stakeholder projects, DCWC is currently working on more than $2 billion of projects across Australia, including dozens of tertiary institutions.

DCWC was appointed by Monash Capital Works Office as Project Manager and Superintendent for the combined Green Chemical Futures and Northwest Precinct Project. After initially working with key stakeholders, DCWC was appointed at the completion of design development to oversee the finalisation of the building design through to tender, contract award, construction and full project delivery. With the Green Chemical Futures building set in an occupied campus, a master plan approach was required.

"In addition to the new building there were multiple early works components including modular buildings as temporary teaching and office accommodation, demolition and other refurbishment projects," DCWC's James Hawkins said. "We developed a sequenced approach to ensure on-time delivery of the new building while also ensuring continuity of teaching in areas impacted by the project. All works were undertaken in a live campus environment and the planning of pedestrian management of students and public through these areas during construction was a key contributor to the project's success"

The development saw challenges and innovations, including the position of the building over an existing tunnel network and electrical substation, which required significant engineering to ensure integrity of the existing network while also allowing heavy construction above. "The project included three existing buildings which were also extensively refurbished including new lifts, stairwells, plant, etc. The refurbishment of those buildings in tandem with the new build added an additional level of resourcing complexity for all stakeholders throughout the project" James said.

DCWC initiated the procurement strategy which was a Design and Construct, Guaranteed Maximum Price with consultants novated to the head contractor. The strategy included careful planning to ensure that early works contracts, including demolition, were able to be smoothly novated to the head contractor once appointed

For more information contact Donald Cant Watts Corke Management Pty Ltd, Level 3 GPO Building, 350 Bourke Street, Melbourne VIC 3000, phone 03 8662 1111, email james.hawkins@dcwc.com.au, website www.dcwc.com.au

Below Profab Engineering completed custom balustrades, staircases and the west end façade on the Green Chemicals Futures Building.

Below ADR Security Solutuions completed security and CCTV system installation on the GCF.

Over the past quarter of a century Profab Engineering has been a major provider of Architectural Metalwork to Tier 1 clients.

Established in 1988 it has grown to be a preferred contractor to the Commercial Construction industry, through consistent development of both staff and systems, and by working with their clients to achieve a successful outcome. By understanding and meeting the intent of the Architect and then through the Design and Construction stage, Profab has over many projects, proven its ability to meet the challenges that large scale and specialised projects create.

The Green Chemical Futures building was no exception. The variety of works from custom balustrades following the dynamic lines and angles of the building, though to the fabrication of the 15 Tonne central feature staircase. To finish off the void was custom stainless steel and glass balustrades with perforated metal walls in to the Atrium.

The major project element on this build was the custom designed and engineered 750m^2 façade to the west end. Project Director Craig Millar is very proud of his teams work to and achieve the reversing panel overlay which creates banding to merge with the sloping panels that run the length of the building. "It's quite a striking feature and took some work to attach the expanded metal panels to our secondary steel to ensure the assembly was repeatable and feasible to install."

The system was developed by Profab's Construction Director Cam Simpson. The entire assembly was modelled in 3D using Tekla-BIMsight by Tek1 and Surveying by Absolute. Profab worked closely with Structural Challenge who's accurate structure which was critical to the façades success.

Along with Lend Lease, their client base includes Leighton, Mirvac, Westfield, and Probuild. Current projects for Profab Engineering includes Leighton's 567 Collins Street office tower, Mirvac's new building at 699 Collins St, and the University of Melbourne upgrade to the old Emporium building for Schiavello.

For more information contact Profab Engineering, 5 Tuscan Court, Thomastown VIC 3064, phone 03 9469 3115, fax 03 9460 2535, email admin@profab.com.au, website www.profab.com.au

Offering fully integrated, state-of-the art security systems across multiple buildings or sites within strict time constraints, ADR Security Solutions are the experts when it comes to large complex projects.

Specialising in the supply, installation and maintenance of access control, alarm, CCTV and intercom systems, the company has been supplying security solutions for eight years and employs 11 people with well over 50 years' experience in the industry. They pride themselves on providing a flexible approach while offering the best service in the industry with unbeatable value for money.

As security system specialists, ADR Security Solutions were contracted to carry out the security and CCTV system installation within the Green Chemical Futures Building. Three of thier staff worked on the project, which took around six months to complete.

"The installation of the building's security and CCTV system involved the supply and installation of cabling from the central communications rooms on each floor to the security device locations, as well as supply of access control, alarm detection, CCTV and intercom equipment," ADR Security Solutions' Aaron Rodgers said.

The company also used new products on the project, including Axis IP Cameras and Pelco Digital Sentry Network Video Recorder (NVR).

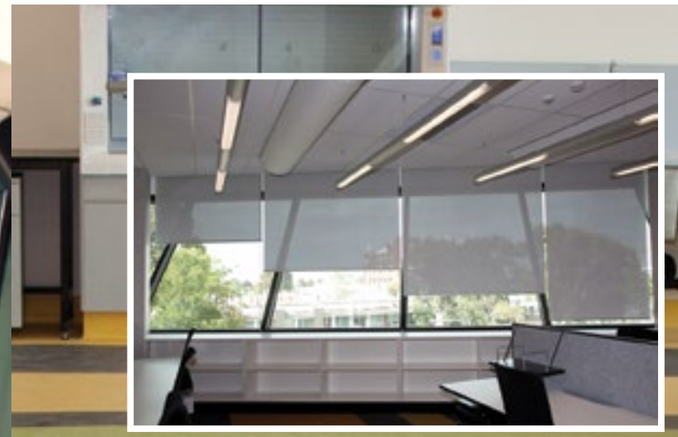
"The Axis IP cameras and Pelco NVR are extremely good quality in both image clarity and physical construction," Aaron added. "They are well suited to the university environment where quality is paramount."

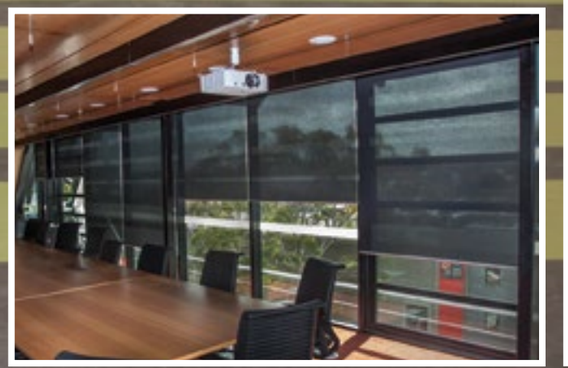
The company did encounter some challenges during the installation of the systems particularly when trying to conceal the cabling, with the building's architectural features making this concealment quite difficult.

ADR Security Solutions continues to supply, install and configure security systems for organisations and projects throughout Melbourne. Among its current projects are the Pakenham Racecourse and Kew Apartments.

For more information contact ADR Security Solutions, Factory 9/9, Hi-Tech Place, Rowville VIC 3178, phone 03 9777 0050, fax 03 9777 0258, website www.adrsecuritysolutions.com.au.

Green Chemicals Futures Building, VIC





Below Norfolk blinds supplied specialised solar control screen roller blinds to the building's external and internal glazing.

As a manufacturer of high spec, custom-made blinds, Norfolk Blinds continues to offer its clients flexibility and quality through supplying directly to a project.

Having been in business since 2003 and with 24 employees, the company has the ability to produce custom-made blinds within short time frames. Its exceptional project coordination also ensures the most demanding requirements on a project are met.

Working on Monash University's Green Chemical Futures Building, Norfolk Blinds supplied specialised solar control screen roller blinds to the building's external and internal glazing, meeting strict environmental standards.

"We used an imported metallised back sun screen fabric to meet Green Building code standards, which was a more specialised fabric in comparison to other developments," Norfolk Blinds' Managing Director Paul Humber explains.

"The Green Chemicals Future media rooms also required total light exclusion blinds. These blinds are automated and are custom built for the required application."

As national supplier of blinds to projects across Australia and New Zealand, whether it's an individual office, apartment complexes or developments such as the Green Chemical Futures Building, Norfolk Blinds provides a one-stop shop for everything requiring blinds.

Its modern state-of-the-art factories ensure Norfolk Blinds can manufacture large volumes, while providing a quality finish. If there is a need for solar control, Norfolk Blinds will provide an innovative, effective solution.

Norfolk Blinds' environmentally-friendly blind control solutions are also being utilised on Melbourne's Abode318 apartment complex, Common Ground apartments in Adelaide, Australian Catholic University in Brisbane and several high-rise office complexes in Sydney.

For more information contact Norfolk Blinds Pty Ltd, 15 Logistics Street, Keilor Park VIC 3042, phone 1300 557 544, email sales@norfolkblinds.com.au, website www.norfolkblinds.com.au